ORDER FOR SUPPLIES OR SERVICES

PAGE OF PAGES: 1 | 2

IMPORTANT: Mark all packages and papers with contract and/or order numbers.

1. DATE OF ORDER: 05/03/2012	2. CONTRACT NO. (If any): EP-C-11-036
3. ORDER NO.: 0002	4. REQUISITION/REFERENCE NO.: PR-ORD-12-00122

5. ISSUING OFFICE (Address correspondence to):
CPOD
US Environmental Protection Agency
26 West Martin Luther King Drive
Mail Code: NWD
Cincinnati OH 45268

6. SHIP TO:
a. NAME OF CONSIGNEE: CPOD
b. STREET ADDRESS: US Environmental Protection Agency
Cincinnati Procurement Op. Division
26 West Martin Luther King Drive
c. CITY: Cincinnati | d. STATE: OH | e. ZIP CODE: 45268

7. TO:
a. NAME OF CONTRACTOR: RESEARCH TRIANGLE INSTITUTE
b. COMPANY NAME:
c. STREET ADDRESS: PO BOX 12194
d. CITY: RESEARCH TRIANGLE PARK | e. STATE: NC | f. ZIP CODE: 277092194

f. SHIP VIA:

8. TYPE OF ORDER
☐ a. PURCHASE
REFERENCE YOUR:
Please furnish the following on the terms and conditions specified on both sides of this order and on the attached sheet, if any, including delivery as indicated.
☒ b. DELIVERY
Except for billing instructions on the reverse, this delivery order is subject to instructions contained on this side only of this form and is issued subject to the terms and conditions of the above-numbered contract.

9. ACCOUNTING AND APPROPRIATION DATA: See Schedule

10. REQUISITIONING OFFICE: CPOD

11. BUSINESS CLASSIFICATION (Check appropriate box(es))
☐ a. SMALL ☐ b. OTHER THAN SMALL ☐ c. DISADVANTAGED ☐ d. WOMEN-OWNED ☐ e. HUBZone
☐ f. SERVICE-DISABLED VETERAN-OWNED ☐ g. WOMEN-OWNED SMALL BUSINESS (WOSB) ELIGIBLE UNDER THE WOMEN-OWNED SMALL BUSINESS PROGRAM ☐ h. ECONOMICALLY DISADVANTAGED WOMEN-OWNED SMALL BUSINESS (EDWOSB)

12. F.O.B. POINT: Destination

13. PLACE OF		14. GOVERNMENT B/L NO.	15. DELIVER TO F.O.B. POINT ON OR BEFORE (Date)	16. DISCOUNT TERMS
a. INSPECTION	b. ACCEPTANCE			
Destination	Destination		30 Days After Award	

17. SCHEDULE (See reverse for Rejections)

ITEM NO. (a)	SUPPLIES OR SERVICES (b)	QUANTITY ORDERED (c)	UNIT (d)	UNIT PRICE (e)	AMOUNT (f)	QUANTITY ACCEPTED (g)
	DUNS Number: (b)(4) Industrial Sector Advancements to MARKAL Database TOPO: Ozge Kaplan Continued ...					

18. SHIPPING POINT	19. GROSS SHIPPING WEIGHT	20. INVOICE NO.	17(h) TOTAL (Cont. pages)

21. MAIL INVOICE TO:

SEE BILLING INSTRUCTIONS ON REVERSE

a. NAME: RTP Finance Center — $44,381.00

b. STREET ADDRESS (or P.O. Box): US Environmental Protection Agency
RTP-Finance Center (D143-02)
109 TW Alexander Drive

17(i) GRAND TOTAL: $44,381.00

c. CITY: Durham | d. STATE: NC | e. ZIP CODE: 27711

22. UNITED STATES OF AMERICA BY (Signature)

23. NAME (Typed): Camille W. Davis
TITLE: CONTRACTING/ORDERING OFFICER

IMPORTANT: Mark all packages and papers with contract and/or order numbers.

DATE OF ORDER	CONTRACT NO.	ORDER NO.
05/03/2012	EP-C-11-036	0002

ITEM NO. (a)	SUPPLIES/SERVICES (b)	QUANTITY ORDERED (c)	UNIT (d)	UNIT PRICE (e)	AMOUNT (f)	QUANTITY ACCEPTED (g)
	Admin Office: CPOD US Environmental Protection Agency 26 West Martin Luther King Drive Mail Code: NWD Cincinnati OH 45268 Accounting Info: 11-12-C-26CF000-404FB1A-2532-1226CFE003-001 BFY: 11 EFY: 12 Fund: C Budget Org: 26CF000 Program (PRC): 404FB1A Budget (BOC): 2532 DCN - Line ID: 1226CFE003-001 Period of Performance: 05/03/2012 to 05/03/2013					
0001	Funding for Ind Sec Adv to MARKAL Database				44,381.00	
	The obligated amount of award: $44,381.00. The total for this award is					

TOTAL CARRIED FORWARD TO 1ST PAGE (ITEM 17(H)) $44,381.00

PERFORMANCE WORK STATEMENT
STREAMS II
RTI EP-C-11-036, Task Order 0002

TITLE: Industrial Sector Advancements to MARKAL Database

Task Order Manager (TOM)	**Alternate Task Order Manager (ATOM)**
Name: P. Ozge Kaplan	Name: Cynthia Gage
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Phone: (919) 541-069	Phone: (919) 541-0590
Fax: (919) 541-7885	Fax: (919) 541-7885
Email: Kaplan.Ozge@epa.gov	Email: Gage.Cynthia@epa.gov

PERIOD OF PERFORMANCE: May 3, 2012 through May 3, 2012

BACKGROUND

The U.S. EPA's Global Change research program has been investigating whether future climate change may cause significant air quality degradation. In support of these activities, the Energy and Climate Assessment Team has been assembling a database of technologies to represent the U.S. energy system within the MARKAL modeling framework. A baseline reference energy system for the database has been completed for both a U.S. National Model and U.S. nine-region model (based on Census divisions). One of the primary uses of these models will be to investigate the potential changes to future U.S. air quality and greenhouse gas emissions out to year 2050 as determined by fuel and technology choices.

MARKAL is a linear optimization model which finds the least cost required to meet end-use demands. Output data includes energy (fuel) and technologies used to meet end-use demands. Sectors considered in the energy system are residential, commercial, transportation, industrial, and energy generation. The industrial sector representation has been developed primarily from two Energy Information Administration data sources: 2008 Annual Energy Outlook (AEO) and 2002 Manufacturing Energy Consumption Survey (MECS).

EPA's goal is to update and improve the representation of each industry sector in MARKAL, while simultaneously collecting the necessary data to facilitate the revisions. The new model will be flexible enough to adapt and accommodate: (1) macro-economic drivers that could change the demands for goods and services; (2) structural shifts (e.g. changes in product mix or relocation of the industry) in the current make up of each industry sector; (3) technological changes; and (4) new and existing environmental policies and regulations.

EPA envisions a customized model for each industry sector that will be developed after the completion of the tasks listed in this task order (TO). Previous work on the customized models completed last year investigated and updated demands from energy units to some form of

physical units such as tons of product produced in an industry sector. This way, EPA would be able analyze various emerging and existing technology pathways (given their energy intensities are known) to produce e.g. one ton of product. For each industry sector, the analysis of current plant configurations and historic energy use has been completed. A basic representation of the current process (i.e., whole process could be lumped up into one technology in MARKAL) and as needed, EPA has been planning to add detailed representation. The decision on whether to expand or not has been based on: (1) an energy service category's share in the overall energy consumption in that industry sector (e.g. machine drive in food industry) is significant and improving over time; (2) potential technologies in a process that might be subject to regulations; (3) the availability of emerging technologies in a process; and (4) extensive use of boilers and combined heat and power (CHP). Thus, the preliminary decisions and data collection on those steps were established with the previous work assignment. The goal of this TO is to complete the data collection on specific technologies that are in use and anticipated to be used in the future in each industry sector.

This project will advance the industrial sector representation in MARKAL by collecting data for the emerging technologies foreseen for the industrial subsectors that would improve energy efficiency of the industrial processes.

GLOSSARY

An *industry sector* is a group of industries that produce similar categories of products. Examples include metals manufacturing, chemicals, food, etc. (See Table 1)

An *industry subsector* is a group of sub-industries that produce similar end-products or uses similar raw materials. Examples include iron-and-steel manufacturing, organic chemicals, cement, etc. (See Table 1)

A *process* (plant design/configuration) is defined as the set of technologies that would make up the complete system (i.e. sets of equipment) to produce end-product/s in an industry subsector.

The energy used by the process will be categorized under *energy service categories*: boilers/steam/cogeneration, process heat (direct/indirect heat, electrical heating etc.), machine drive, facility (or building), electrochemical, feedstock and other heat.

A *technology* could be a piece of equipment (e.g. boiler) or set of equipments (e.g. a boiler with control equipments) in a process.

DESCRIPTION

While conducting all the tasks listed below, the critical data provided by the Contractor should come from a source that regularly updates with latest information available.

Table 1, below, presents the industry subsectors that will be represented in the MARKAL database. The expansion of the sectors into subsectors requires that all sector level data be distributed down to the subsector level as well as providing representation of data both nationally and regionally (nine (9) Census Regions).

Table 1 New MARKAL Industrial Sectors and Corresponding NAICS Codes

3-Digit NAICS	6-Digit NAICS	Sector	Subsector
331	3313 minus 331314	Primary metals	Primary Aluminum
	331314	Primary metals	Secondary Aluminum
	331111	Primary metals	Primary Steel (integrated iron and steel)
	331210	Primary metals	Secondary Steel
	3313, 3314, 3315 (multiple)	Primary metals	Other (e.g., copper, lead)
322	322110	Pulp and paper	Pulp Mills
	322121 and 322122	Pulp and paper	Paper Mills, including Newsprint
	322130	Pulp and paper	Paperboard Mills
	3222 (numerous)	Pulp and paper	Other Pulp and Paper
325	325110, 325192, 325193, 325199	Chemicals	Organic
	325120, 325181, 325182, 325188	Chemicals	Inorganic
	325211, 325212, 325222	Chemicals	Plastics, Fibers and Resins
	325311, 325312	Chemicals	Agricultural Chemicals
	Numerous	Chemicals	Other
327	327310	Non-metals	Cement
	327211, 327212, 327213, 327215, 327993	Non-metals	Glass
	32739, 327111, 327121, 327410, 327420, 327910, 327992, 327999	Non-metals	Other
311	311 (numerous)	Food	All
Numerous	Numerous	Other	All Others

Part of the scope of this project is to identify technologies and gather appropriate data to represent technologies for the processes. The necessary data for existing and future technologies include:

- Capital cost per unit
- Fuel required, such as electricity, fuel oil, etc.
- Efficiency
- Operating and maintenance costs on an annual basis

- Availability year
- Lifetime
- Emissions factors for CO2, SO2, NOx, VOC, PM10, PM2.5, CO, CH4, N2O
- Regional data as appropriate

It is worth noting that MARKAL's structure is such that intensive technological detail is unnecessary. If two competing advancements have the same efficiency improvement, MARKAL will select the least costly. Thus, gathering data on the higher capital cost item would not be warranted.

DESCRIPTION OF TASKS

The following tasks are to be performed under this TO. All technological data provided to EPA under these tasks shall be done in an Excel spreadsheet using a template provided by EPA (Attachment #2). In addition, EPA shall provide all existing MARKAL data for the industrial sector to the Contractor.

Industrial Representations: Success on this project will require some familiarity with industrial sector representations within energy models.

TASK 1 Quality Assurance Project Plans (QAPP)

The Contractor shall provide a QAPP as required by this Performance Work Statement. The Contractor may use the attached QAPP (see Attachment #3) as a reference to generate the QAPP for this Task Order. No work shall be initiated under this TO until the QAPP has been provided, reviewed, and approved by the EPA. The QAPP shall be developed according to the requirements in Attachment #1 to this PWS. In addition, the Contractor shall follow the guidelines provided in Attachment #4 for MARKAL data collection.

TASK 2 Data Collection on Advanced Technologies

Task 2a

The Contractor shall gather technology data and emissions information as listed in the Description Section for the new emerging technologies that would lead to energy efficiency improvements in each industry subsector. Two (2) tables are provided below that list emerging technologies for each industry sector. *Table 2*, an output from a previous work assignment, gathers a list of emerging technologies for the following industry subsectors: primary aluminum, integrated iron and steel, secondary iron and steel, paper, pulp, agricultural chemicals, and food. A second table, *Table B16* (provided in Appendix 1) of the "Model Documentation Report: Industrial Sector Demand Module of the National Energy Modeling System DOE/EIA-M064 (2011)" report ftp://ftp.eia.doe.gov/modeldoc/m064(2011).pdf *(DOE/EIA Report), lists the emerging technologies used in NEMS model. EPA realizes that the technologies listed in both Tables 2 and B16 are beyond the detail that is anticipated to be input in the MARKAL*

model. Thus, the following guidelines are provided to concentrate the data gathering efforts. Both tables list either alternative processes for a state-of-art (S-O-A) facility or for an advanced facility or improvements/retrofits to the sub-process to increase efficiency. The technologies in an S-O-A facility can be in commercial stage and could be operational within 5-10 years, whereas technologies in an advanced facility can be in pilot or demonstration stage, and the full commercialization could be expected within 10-20 years. The Contractor shall gather technology data and emissions information data for (1) an S-O-A process design for a given industrial subsector, (2) an advanced process design for a given industrial subsector, and (3) cluster of technologies that would yield at least 5% energy efficiency improvement in the sub-process that have short lead times, i.e., these cluster of technologies can be added to existing facilities to increase energy efficiency. The Contractor shall gather data on the most technically feasible alternative process technology listed in Table B16. Table 3 is provided as a guideline on how to use Table B16.

A template on the structure of MARKAL inputs will be provided by EPA (Attachment #2). As a starting point, the Contractor shall begin with collecting data for the cement sector. After the completion of the cement sector, in consultation with EPA, the Contractor will move onto analyses of other industry subsectors to complete Task 2a.

Task 2b

In addition to technologies listed in *Table 2* and *Table B16* of the DOE/EIA report, the Contractor shall do an additional literature search for additional technologies that could expand the list provided in *Table 2* and *Table B16* of the DOE/EIA report. Note that the food sector was excluded from those tables. The Contractor is required to do a brief literature review on possible new emerging technologies for the food industry. This task is intended to be no more than 10% of the full effort.

Table 2 Recommended Plant Configuration/Process Changes within Industrial Sector

Subsector	Plant Configuration/Process Change	Comments
Metals – Primary Aluminum	Titanium Diboride Electrodes	Reduces electrochemical energy usage and feedstock energy usage. The non-consumable, non-carbon electrodes eliminate direct emissions of carbon dioxide and perfluorocarbons (which are greenhouse gases) and polycyclic organic material (organic HAPs).
Metals – Integrated Iron and Steel	CCF (Cyclone Converter Furnace, such as used by the HIsarna process)	Reduces energy usage and eliminates the need for coke production, resulting in significantly lower criteria and hazardous air pollutant emissions.
Metals – Electric Arc Furnace (EAF) Steel (using scrap)	New EAF designs that combine increased fuel and oxygen injection with scrap preheating	Energy consumption is approximately one-half of current technologies (LNBL, 2000).
Pulp and Paper-Pulp	Recycled paper input	Recommended three (3) subsectors: pulp mills, paper mills (including newsprint) and paperboard. For other sectors (e.g., aluminum and steel) there were separate subsectors for recycled material inputs. It may be desirable to incorporate recycled paper input into the existing pulp and paper subsector, as was done for steel and aluminum. It has been observed that production of recovered paper pulp uses less energy per tonne than production of virgin pulp, but that the production of recovered paper pulp is generally more CO2-intensive, since production of virgin pulp uses biomass for energy, which is CO2-neutral (IEA/OECD, 2009).
Pulp and Paper – Paper	Impulse Drying	Impulse drying improves the initial step of mechanical removal of water from the paper sheet, thus lowering the amount of subsequent drying required. It can be retrofitted onto an existing machine, or incorporated into new machines.
Chemicals - Agricultural	Autothermal Reforming of Ammonia	Autothermal reforming processes combine steam reforming and partial oxidation. It can be retrofitted to existing plants.
Food	Membrane Technologies	Membrane technologies are used for microfiltration (MF), ultrafiltration (UF), nanofiltration (UF) and reverse osmosis (RO). Potential energy savings are significant, but impacts on air pollution are less significant.

Table 3 Guidelines on How to Use the Table B16 to Collect MARKAL Data

Subsectors	Technology Evolution	Major Process Steps to Include in the MARKAL Data Collection	Alternative Process	Improvements in Sub-processes
Pulp mills	S-O-A	Wood preparation + Chemical pulping + Bleaching Oxygen Pre-delignification	The Contractor shall identify most feasible alternative S-O-A technology combination to form a pulp mill that has the shortest lead-time and already in commercial stage.	The Contractor shall include a collection of technologies that would achieve at least 5% improvement on the energy efficiency and have the least lead-time.
Pulp mills	S-O-A	Wood Preparation + Mechanical and Semi-mechanical pulping + Bleaching Oxygen Pre-delignification	Same as above	Same as above
Pulp mills	Advanced	Wood preparation + Chemical pulping + Bleaching Oxygen Pre-delignification	The Contractor shall identify most feasible advanced technology combination to form a pulp mill. The selected combination of technologies is expected to be deployed at full commercial scale within 20-year timeframe.	No data collection will be conducted for the technologies listed under this category.
Pulp mills	Advanced	Wood Preparation + Mechanical and Semi-mechanical pulping + Bleaching Oxygen Pre-delignification	The Contractor shall identify most feasible advanced technology combination to form a pulp mill. The selected combination of technologies is expected to be deployed at full commercial scale within 20-year timeframe.	No data collection will be conducted for the technologies listed under this category.

Papermaking	S-O-A	Papermaking technologies	The Contractor shall identify most feasible alternative S-O-A technology combination to form a full papermaking mill that has the shortest lead-time and already in commercial stage.	The Contractor shall include a collection of technologies that would achieve at least 5% improvement on the energy efficiency and have the least lead time.
Papermaking	Advanced	Papermaking technologies	The Contractor shall identify most technically feasible advanced technology to form a full papermaking mill. The selected technology is expected to be deployed at full commercial scale within 20-year timeframe.	No data collection will be conducted for the technologies listed under this category.
Glass	Advanced	Batch preparation + Melting/refining + forming/post-forming technologies	The Contractor shall identify most feasible advanced technology combination to form a full glass manufacturer. The selected combination of technologies is expected to be deployed at full commercial scale within 20-year timeframe.	No data collection will be conducted for the technologies listed under this category.
Cement	S-O-A	All the new cements kilns are expected to be precalciner kilns, and we already have some information on that.	No data collection will be conducted for the technologies listed under this category.	Identify additional % efficiency improvements and costs if majority of the technologies listed in that category are implemented in the new precalciner kilns.

Cement	Advanced	Process + finish grinding technologies	Include a costing for advanced electric kilns and advanced comminution	Identify additional % efficiency improvements if at least 40% of the technologies listed in that category are added to the facility.
Iron & Steel	S-O-A	Coke making + iron making + steel making + steel casting +steel forming + steel finishing	The Contractor shall identify most feasible alternative S-O-A technology combination to form an iron & steel manufacturing plant that has the shortest lead-time and already in commercial stage.	The Contractor shall include a collection of technologies that would achieve at least 5% improvement on the energy efficiency and have the least lead time.
Iron & Steel	Advanced	Coke making + iron making + steel making + steel casting +hot rolling/cold rolling/finishing	The Contractor shall identify most technically feasible advanced technology to form an iron & steel manufacturing plant. The selected technology is expected to be deployed at full commercial scale within 20-year timeframe.	No data collection will be conducted for the technologies listed under this category.
Aluminum – Primary	S-O-A	Alumina refining + primary aluminum techs + semi-fabrication	The Contractor shall identify most feasible alternative S-O-A technology combination to form a primary aluminum manufacturing plant that has the shortest lead-time and already in commercial stage.	The Contractor shall include a collection of technologies that would achieve at least 5% improvement on the energy efficiency and have the least lead time.

Aluminum - Secondary	S-O-A	Secondary aluminum	The Contractor shall identify most feasible alternative S-O-A technology combination to form a secondary aluminum manufacturing plant that has the shortest lead-time and already in commercial stage.	The Contractor shall include a collection of technologies that would achieve at least 5% improvement on the energy efficiency and have the least lead time.
Aluminum – Primary	Advanced	Alumina refining + primary aluminum techs + semi-fabrication	The Contractor shall identify most technically feasible advanced technology to form a primary aluminum manufacturing plant. The selected technology is expected to be deployed at full commercial scale within 20-year timeframe.	No data collection will be conducted for the technologies listed under this category.
Aluminum - Secondary	Advanced	Secondary aluminum	The Contractor shall identify most technically feasible advanced technology to form a secondary aluminum manufacturing plant. The selected technology is expected to be deployed at full commercial scale within 20-year timeframe.	No data collection will be conducted for the technologies listed under this category.

TASK 3 Expansion of Major Energy Intense Industries

Task 3a The Contractor shall prepare a report to address the following questions:

- What is the growth outlook for the major energy intensive industries of pulp and paper, iron and steel, chemicals, and aluminum?
- Do any of these industries have plans to either expand or construct new facilities? If so at what capacity? In which census regions? Will the new facilities be state-of-art or advanced technology facilities?
- If the pulp and paper industry has a plan to expand capacity, what types of new facilities are planned (e.g., integrated pulp and paper mills, or mills that are using more recycled fiber)?

Task 3b The Contractor shall investigate the growth potential of new carbon-neutral feedstocks (bio-based chemical industry) for the chemical industry that could replace major fossil fuel feedstocks such as petroleum products and natural gas. The findings will be gathered in a report.

TASK 4 Metals Manufacturing: Aluminum Industries

The metal manufacturing industry will be broken into five (5) distinct sectors: primary iron and steel, secondary iron and steel, primary aluminum, secondary aluminum, and other metals. EPA has provided a typical flowchart in Appendix 2 for the current processes in these industry sectors.

a) The Contractor shall gather data on the regional distribution (at Census division level) of primary and secondary aluminum facilities and their corresponding capacities, O&M costs, emissions, etc. as listed in the Description Section. The Contractor shall provide the data in a workbook (see Attachment #2).

TASK 5 Review of Final Materials by EPA and Completion of Revisions

As deliverables are delivered, EPA shall review the material and provide comments. Where applicable, the Contractor is expected to complete revisions. This task should not be viewed as a major task. The Contractor should anticipate one (1) week's worth of work at the most.

TASK ORDER DELIVERABLES

The Contractor shall provide the following deliverables either in a report or spreadsheet format according to the schedule provided below:

		Number of Weeks																			
Task	**Deliverable**	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	QAPP	■	■	■	■																
2	Report and spreadsheets					■	■	■	■	■	■	■	■								
3	Report													■	■						
4	Spreadsheet															■	■				
5	Final versions of deliverables from Tasks 2-4																	■	■	■	■

APPENDICES

1. List of future advanced technologies in each industrial sector
2. Flowchart of processes of each industrial sector

ATTACHMENTS

1. Attachment #1 to the Performance Work Statement for Secondary Data Projects
2. Spreadsheet template for data collection in MARKAL
3. Reference QAPP from previous work assignment on the advancements to industrial sector representation in MARKAL
4. Additional QA guidance on the MARKAL data collection

APPENDIX 1

QUALITY ASSURANCE SURVEILLANCE PLAN (QASP)
STREAMS II
Battelle EP-C-11-036, Task Order 2

TITLE – Industrial Sector Advancements to MARKAL Database

TASK ORDER MANAGER – Ozge Kaplan

Performance Objective (Task)	Performance Standard (PS)	Surveillance Plan Surveillance Plan (SP)	Contractor Incentive (CI)	✓ or X
Task 1: Quality Assurance Project Plan (QAPP)	Contractor provides a QAPP within one (1) month after TO award.	TOM will document whether receipt of deliverable is timely. TOM will document whether quality of deliverable is at an acceptable level.	TOM will address compliance in PPE	
Task 2: Data Collection on Advanced Technologies	Contractor provides full and complete technology and emissions data in report and spreadsheet formats with all appropriate background documentation within three (3) months after TO award. Contractor demonstrates that the QA guidance for MARKAL data collection was used.	TOM will document whether receipt of deliverable is timely. TOM will document whether quality of deliverable is at an acceptable level. The Contractor is expected to follow the QA guidance for data collection MARKAL properly to produce quality data.	TOM will address compliance in PPE	
Task 3: Expansion of Major Energy Intense Industries	Contractor provides full and elaborative report that includes both qualitative and quantitative data to address questions posed in Task 3 within four (4) months after TO award.	TOM will document whether receipt of deliverable is timely. TOM will document whether quality of deliverable is at an acceptable level.	TOM will address compliance in PPE	
Task 4: Metals Manufacturing: Aluminum Industries	Contractor provides full and complete set of technology and emissions data with all appropriate background documentation in spreadsheet formats within four (4) months after TO award.	TOM will document whether receipt of deliverable is timely. TOM will document whether quality of deliverable is at an acceptable level.	TOM will address compliance in PPE	
Task 5: Review of Final Materials by EPA and Completion of Revisions.	Contractor provides a complete review of the tasks and completes the revisions suggested by EPA within five (5) months after TO award.	TOM will document whether receipt of deliverable is timely. TOM will document whether quality of deliverable is at an acceptable level.	TOM will address compliance in PPE	